Agenda Item 14.4.3
Report No 211/14cncl

TO: **TECHNICAL SERVICES COMMITTEE – MONDAY 8 DECEMBER 2014**

SUBJECT: **HEARING ASSISTANCE FOR ANDY MCNEILL ROOM**

AUTHOR: **TECHNICAL SERVICES ADMINISTRATION ASSISTANT - RAE-ELLEN SWINDELLS**

EXECUTIVE SUMMARY

This report provides information for a hearing assistance solution for the Andy McNeill Room.

RECOMMENDATION

IT IS RECOMMENDED THAT Council approve the installation of a public address and Hearing Assistance system in the Andy McNeill Room

1. BACKGROUND

At the October Access Advisory Committee Meeting information was given regarding Councils current hearing loop installed in the Alice Springs Town Council Chambers.
This hearing loop was thought to be portable however on further investigation the system is hardwired into the current audio equipment.

It was recommended that Council investigates installing a hearing loop system in the Andy McNeill Room.

2. DISCUSSION

In the Andy McNeill room there is no provision for a hearing impaired person.
The large air-conditioning unit that runs along the ceiling in this room makes it hard for the hearing impaired to be able to hear a presenter talking.

There are two types of hearing systems that can be installed:

Hearing Assistance:
FM systems are commonly used to transmit sound from one person to another over distance. They consist of a small microphone attached to a transmitter, and a receiver. FM is an abbreviation for frequency modulated which is the type of radio signal used to transmit sounds from the transmitter to the receiver. FM systems are also sometimes referred to as radio frequency (RF) aids.

The microphone and transmitter, either as two separate items or combined in one unit, are worn by the speaker while the receiver is worn by the hearing aid user. Some hearing aids have the receiver built in to the device. Otherwise, the receiver may be coupled to the hearing aid through an audio input port, or coupled to a loop that is worn around the neck. Using radio-frequency transmission, the signal is carried from the talker to the listener without being corrupted by noise or reverberation.

There is also the option of installing a public address and Hearing Assistance system.

A presenter uses a microphone which feeds to a hard wired transmitter, the audio is then sent out into the room via a loud speaker. The hearing impaired can then use either a head set or neck loop. The neck loops interact with a hearing aid device, when the aid is placed in the 'T' position it is fed signal from the system.
Using a microphone makes this more versatile if you have more than one person speaking as the microphone can be handed around the room and the hearing impaired person can hear the conversation.

Hearing Loop (Induction Loop):
An induction loop system consists of an amplifier and a loop. The amplifier can be connected to a sound source such as a PA system. It then amplifies the sound signal and sends it out, in the form of an alternating current, through the loop. The loop itself consists of an insulated wire, which is placed under the carpet and covers up to 95% of the floor. When alternating current from the amplifier flows through the loop, a magnetic field is created with in the room. If a hearing aid user switches his hearing aid to the T position, the telecoil in the hearing aid picks up the fluctuations in the magnetic field and converts them into alternating currents once more. These are in turn amplified and converted by the hearing aid into sound. The magnetic field within the loop area is strong enough to allow the person with the hearing aid to move around freely within the room and still receive the sound at a good, comfortable listening level.

For both systems leaving a public address system powered up whilst the room is not in use will significantly reduce the components lifespan as overheating will occur, in turn leading to ongoing repairs. As part of the room hire, the contact person on the room hire contract will need to ensure that the system is turned off at the end of the function.

Hearing Assistance Options

Quotes have been obtained from Word of Mouth Technology (Victoria) and Projection Plus (Darwin).
Contact has been made with Disability Advocacy Service and Alice Audiology to see if there is any business in Alice Springs who can provide this technology. Unfortunately there is no business that provides these services.

Option 1 Basic Hearing Assistance:

Word of Mouth - $3,936.80 (Attachment A)
Projection Plus – referred to their technical experts who recommend not putting this system into the Andy McNeill Room.

Option 2 Public Address and Hearing Assistance System

Word of Mouth - $12,750.60 (Attachment B)
Projection Plus – $14,686.10 (Attachment C)

Hearing Loop Option

Quotes have not been obtained for a Hearing Loop system as the benefits and financial commitments would not be favourable for Alice Springs Town Council.
The Hearing Loop is only suitable for a person who has a T switch on their hearing aid. A Hearing Assistance system is more versatile where a person wearing a hearing aid can use a personal neck loop, and a person who is hard of hearing can use a headset.
The financial impacts for Council include all carpet being removed to lay down the copper cable over 95% of the floor. The carpet would then need to be re-laid without damaging the cable.

3. POLICY IMPACTS

Nil

4. FINANCIAL IMPACTS

Funding of $15,000.00 is available from the Building Maintenance Programme - 32.25.241

The Hearing Assistance system comprises of a number of small portable components; allowance will need to be made for the replacement of these if they are lost or stolen.

5. SOCIAL IMPACTS

Hearing impaired person will feel more welcome when using the Andy McNeill Room.

6. ENVIRONMENTAL IMPACTS

Nil

7. PUBLIC RELATIONS

The Andy McNeill room will be more usable for the hearing impaired.

8. ATTACHMENTS

A. Quote – Word of Mouth – Basic System
B. Quote – Word of Mouth – Public Address & Hearing Assistance System
C. Quote – Projection Plus – Public Address & Hearing Assistance System

R E Swindells

Rae-Ellen Swindells
ADMINISTRATION ASSISTANT

Greg Buxton
DIRECTOR TECHNICAL SERVICES

Word of Mouth Technology Pty Ltd

Attachment A

Quotation

ABN 98 249 448 821
6 Sturt Street South, Croydon, Vic, 3136
Phone: (03) 9723 0660 Fax: (03) 9723 9305
www.wom.com.au
email: info@wom.com.au

Date 11/11/2014

Ship via

Sales Person: Andrew Willis

Quote Number: 00059906

Quote To: Alice Springs Town Council
PO Box 1071
Alice Springs NT 0871

Ship To: Alice Springs Town Council
PO Box 1071
Alice Springs NT 0871

Qty	[redacted]	Description	Unit Price	Disc	[redacted]	Tax Code
1	LT700	Listen portable transmitter	$599.09		$599.09	GST
1	LA261	Lapel Microphone for LT700	$32.73		$32.73	GST
1	LA277	Conference Microphone (Phillips)	$295.45		$295.45	GST
6	LR400	Portable LCD receiver	$235.45		$1,412.73	GST
6	LA165	Headphones	$22.73		$136.36	GST
3	LA166	Inductive neck loop for hearing aid wearers with T program	$79.00		$237.00	FRE
1	LA321	8 slot charging case	$676.36		$676.36	GST
1	Loop Sign Tactile	Loop Sign Braille/Tactile	$90.00		$90.00	GST
1	Freight	Freight & Handling Costs	$45.00		$45.00	GST
14	ELSB1738	BATT NiMH AA 1.2V 2500MAH	$5.41		$75.73	GST

We appreciate your business.

Quote Value Exc GST	$3,600.45
GST Payable	$336.35
QuoteTotal	$3,936.80
Payments applied	$0.00

BALANCE OF QUOTE $3,936.80

Payment Terms Net 30

EFT: Bendigo Bank BSB 633-000 Account no: 143478444
Account Name: Word of Mouth Technology
Remittance advice to: email accounts@wom.com.au | Fax 03 9723 9305

Payments made by American Express will incur an additional 2% processing fee

Attachment B

Word of Mouth Technology Pty Ltd

ABN 98 249 448 821
6 Sturt Street South, Croydon, Vic, 3136
Phone: (03) 9723 0660 Fax: (03) 9723 9305
www.wom.com.au
email: info@wom.com.au

Tax Invoice

Date 24/11/2014

Order #

Ship via

Sales Person: Andrew Willis

Invoice Number: 00060162

Bill To: Alice Springs Town Council
PO Box 1071
Alice Springs NT 0871

Ship To: Alice Springs Town Council
PO Box 1071
Alice Springs NT 0871

Qty			Unit Price	Disc	Amount	Code
1	PH Digi7000	Digimaster 7000 with i Lapel	$3,800.00		$3,800.00	GST
1	PH DYNAMIC	DynaMic Hand Held Microphone	$600.00		$600.00	FRE
1	PH AUDIO HUB	Roger Audio Hub - Connects to PC/TV to send audio through system	$600.00		$600.00	GST
6	PH MYLINK	My Link+ Receiver Only - Inductive loop receiver for hearing aid wearers (headphones used if no telecoil program)	$600.00		$3,600.00	FRE
6	PH HEADPHONES	MyLink Headphones with 2.5mm connection plug	$44.55		$267.27	GST
1	PH CASE	Charging Case for Inspiro Transmitter and My Link receivers	$876.00		$876.00	GST
2	Loop Sign Tactile	Loop Sign Braille/Tactile	$90.00		$180.00	GST
1	INSTALL	Delivery, Installation and Training	$850.00		$850.00	GST
1	MISC	Airfare Alice Springs return	$1,200.00		$1,200.00	GST

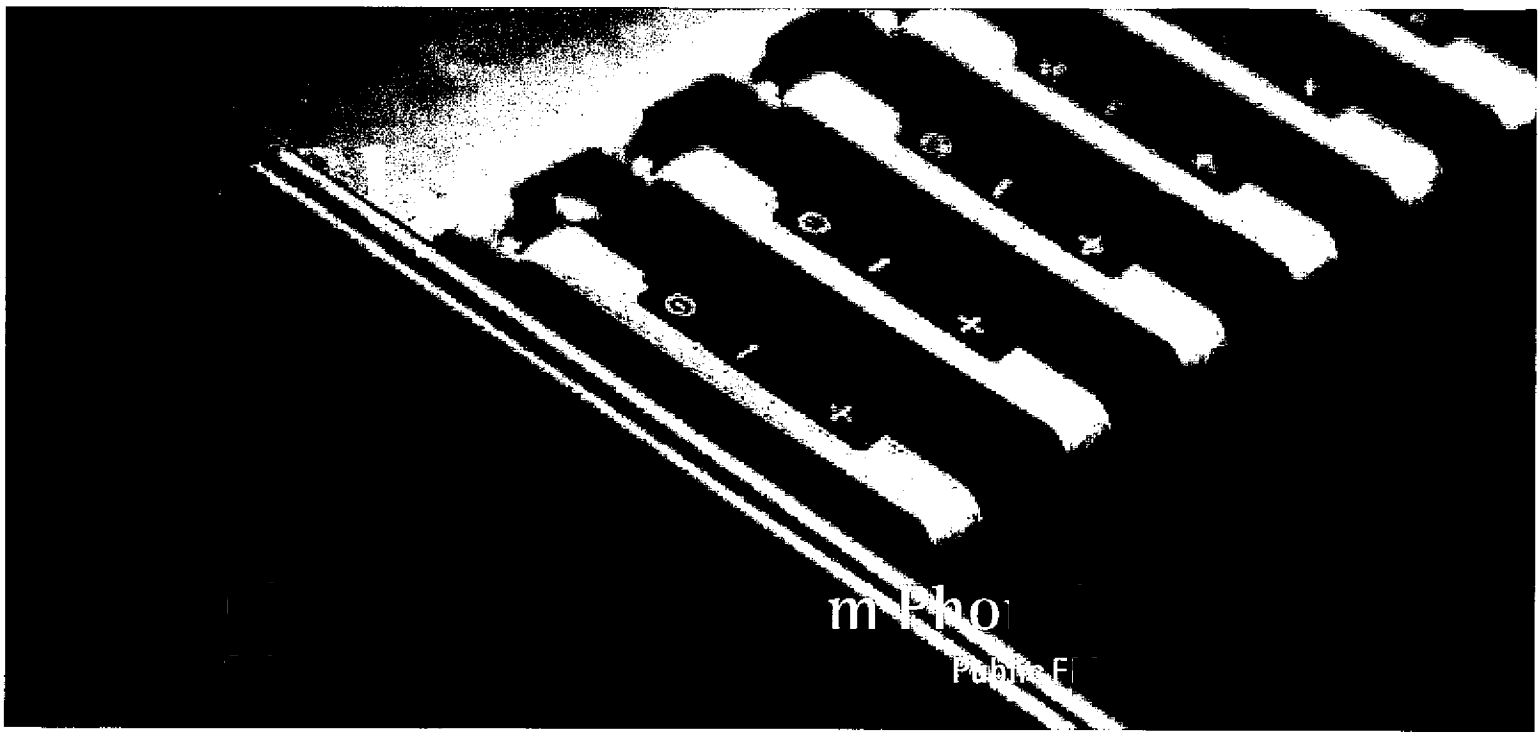
We appreciate your business.

Invoice Value Exc GST	$11,973.27
GST Payable	$777.33
Invoice Total	$12,750.60
Payments applied	$0.00
BALANCE OWING	$12,750.60

Payment Terms Net 30 Day

EFT: Bendigo Bank BSB 633-000 Account no: 143478444
Account Name: Word of Mouth Technology
Remittance advice to: email accounts@wom.com.au Fax 03 9723 9305

Payments made by American Express will incur an additional 2% processing fee

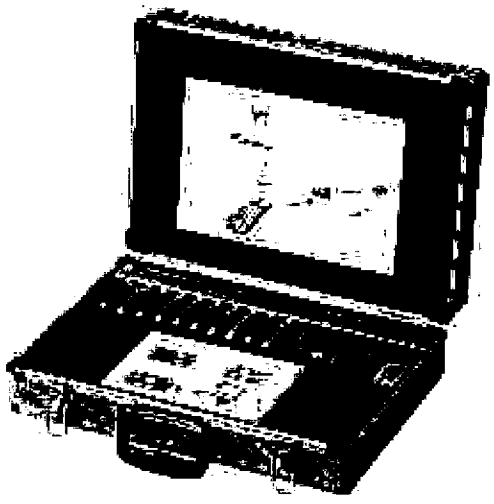


Making public places accessible
The new Charging Suitcase from Phonak is the ideal accessory to store, transport and charge Phonak wireless FM products for public places. The Charging Suitcase can hold 10 MyLink universal FM receivers, 10 headsets and up to two portable Phonak FM transmitters of any type. The built-in charging facility will allow you to conveniently charge all equipment without the need of additional chargers.

Robust and practical
The suitcase is made of aluminum, and soft inlays protect all equipment from shock damage. Only one cable needs to be plugged into the mains to simultaneously charge all equipment. A practical user guide with helpful pictures comes with the suitcase and explains how to handle both suitcase and equipment.

Our products have been very well received by many well-known and respected customers. BMW, Zoo Zurich, SAP, Guinness, The New York Botanical Garden, The Decorative Arts Museum in Paris, to name just a few. Why don't you join these customers and offer your visitors full access?

Charging Suitcase from Phonak: ideal for public places like theaters, movie theaters, houses of worship, town halls, universities, sports venues, conference centers, zoos, museums and guided tours.
Wherever you want to make sure that hearing impaired people can hear and enjoy what you have to offer, Phonak wireless FM products make communication and understanding possible. Phonak transmitters and MyLink receivers are the right solution. The MyLink receivers can be used by people with and without hearing instruments. The convenient Charging Suitcase will help you protect, store and charge the equipment.



PHONAK
hearing systems

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Roger DigiMaster 7000

Technical Data

roger

A Roger Dynamic SoundField system consists of one or more Roger DigiMaster loudspeakers and one or more Roger microphones.

For larger classrooms, lecture halls and auditoriums, Phonak's DigiMaster 7000 is the Roger Dynamic SoundField loudspeaker of choice. This double loudspeaker system can transmit crystal-clear speech sounds over more than twice the area of one Roger DigiMaster 5000.

Roger DigiMaster 7000 features

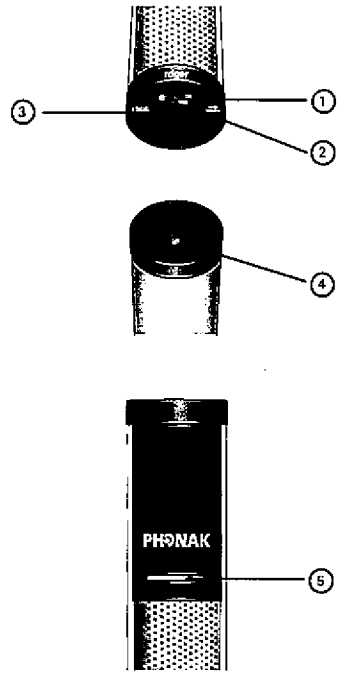
- Two loudspeakers per class
- Unique line-source configuration featuring 15 high-quality loudspeakers per Roger DigiMaster 7000 for crystal-clear sound
- Automated dynamic behavior for optimal signal-to-noise ratios (SNRs)
- Adaptive automatic frequency hopping for interference-free sound
- Operates with Roger microphones
- Sleek design
- Wall-mount and floor-stand options
- Mini-USB for downloading new features
- Indicator light (LED)
- Installation-free

What is Roger

Roger is the new digital standard that bridges the understanding gap, in noise and over distance, by wirelessly transmitting the speaker's voice directly to the listener.

Description

① On/off
② 3.5 mm audio input
③ Power socket
④ Mini-USB
⑤ Indicator light (LED)



Accessories

Floor Stand	Tube height: 1035 mm / 41 inches Foot print diameter: 750 mm / 29 inches Weight: 2165g / 4.8 lbs Height on floor stand: 1880 mm / 74 inches
Wall mounting kit	

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General data

Type:	Roger Dynamic SoundField receiver Operates with Roger microphones
Dimensions (L x W):	1045 x 72 mm / 41 x 2.8 inches
Weight:	2550 g / 5.6 lbs
Operating conditions:	Temperature should not exceed the limit values of 0° to +40° Celsius / +32° to +104° Fahrenheit and relative humidity of < 95% (non condensing)
Transport and storage conditions:	During transport or storage, the temperature should not exceed the limit values of -20° to +60° Celsius / -4° to +140° Fahrenheit and relative humidity of 90% for a long period
Power supply	Voltage input: 100 – 240 V Voltage output: 19 VDC / 3.42 A / 65 W Connector: 5.5 x 2.5 x 11.5 mm / 0.21 x 0.1 x 0.45 inches Polarity + center Power consumption in standby mode: < 1 W Power consumption in off mode: < 0.5 W

Audio characteristics

Audio bandwidth for speech:	200 Hz – 7.5 kHz
Signal-to-noise ratio with EasyBoom microphone:	> 55 dB
Audio bandwidth for auxiliary audio input:	200 Hz – 15 kHz
Signal-to-noise ratio of external audio:	> 70 dB
Volume control for voice:	± 8 dB
Volume control for auxiliary audio input:	±10 dB
Power output:	Up to 40 W
Loudspeaker impedance:	4 Ω
Vertical aperture angle of the main lobe @500Hz:	±25°
Vertical aperture angle of the main lobe @2kHz:	±7°
Auxiliary input socket:	3.5 mm jack
Auxiliary input impedance:	> 10 kΩ

Standards

EMC:	EN 301.489-1, -3, -9, -17
Power consumption comples with Ecodesign Directive 2005/32/EC	EC No 1275/2008, EN 62301

Roger characteristics

Transmission technology:	2.4 GHz including adaptive automatic frequency hopping
Power emission:	100 mW
Operating range:	20 m / 66 feet

DigiMaster characteristics

Room size:	Up to 300 m² / 3230 ft²
Number of DigiMaster 7000 per Roger microphone	2 units
Number of DigiMaster 7000 per building	Unlimited

Roger Dynamic SoundField system data (*)

Target gain for noise level < 54 dB SPL:	+6 dB compared to the voice level
Start of dynamic adaptation:	Noise level > 54 dB SPL
SNR with 45 dB SPL noise level in classroom:	> 26 dB**
SNR with 55 dB SPL noise level in classroom:	> 18 dB**
SNR with 65 dB SPL noise level in classroom:	> 14 dB**
Typical average output level (Volume control 0 dB, speech level of 65 dB SPL@1 m)	Noise level < 54 dB SPL: 77 dB SPL@1 m, 72 dB SPL in the reverberant field Noise level = 60 dB SPL: 81 dB SPL@1 m, 76 dB SPL in the reverberant field Noise level = 66 dB SPL: 85 dB SPL@1 m, 80 dB SPL in the reverberant field Noise level > 66 dB SPL: 85 dB SPL@1 m, 80 dB SPL in the reverberant field
Maximum average output level with EasyBoom microphone:	89 dB SPL@1 m (Volume control +8 dB, noise level of 60 dB SPL, speech level of 75 dB SPL@1m)
Maximum peak output level with EasyBoom microphone:	96 dB SPL@1 m (Volume control +8 dB, noise level of 60 dB SPL, speech level of 75 dB SPL@1m)
Maximum peak output level over auxiliary audio input:	100 dB SPL

* Characteristics with EasyBoom microphone
** Speech level of 65 dB SPL@1 m, SNR measured at a distance of 4 m / 13 ft 1 inch from the voice and loudspeaker sources

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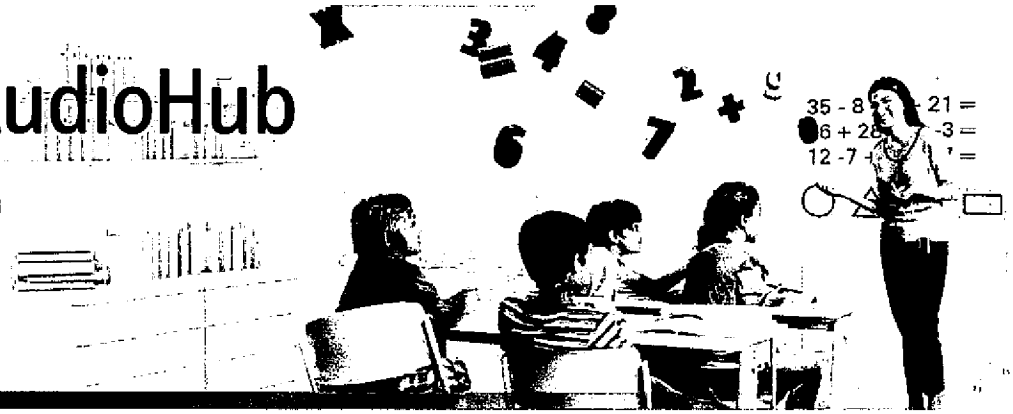
Roger AudioHub

Technical Data

roger



Roger AudioHub is a multimedia interface that allows up to two audio sources to be played through a Roger DigiMaster loudspeaker, transmitted to any Roger and FM receivers in the room, or both simultaneously.
Designed to operate as a secondary transmitter on Phonak's MultiTalker Network, the Roger AudioHub can connect to any multimedia device with an audio out jack, including interactive whiteboards, TVs, radios, computers and MP3 players. Simply run a cable from the audio device into the back of the Roger AudioHub to hear the device's audio output clearly through Roger DigiMaster loudspeakers, Roger receivers or traditional FM receivers. If an audio source does not have its own volume control, just adjust the Roger AudioHub's volume instead.
Roger AudioHub also has a valuable second function – as a Roger inspiro charger. Simply slot Roger inspiro into the AudioHub to replenish its battery when not in use.

Roger AudioHub features

- Connect up to two multimedia devices (2 audio inputs)
- Operates with Roger and Dynamic FM microphones and receivers
- MultiTalker Network (MTN)
- Easy to use
- Built-in inspiro charger

What is Roger

Roger is the new digital standard that bridges the understanding gap, in noise and over distance, by wirelessly transmitting the speaker's voice directly to the listener.

Internet

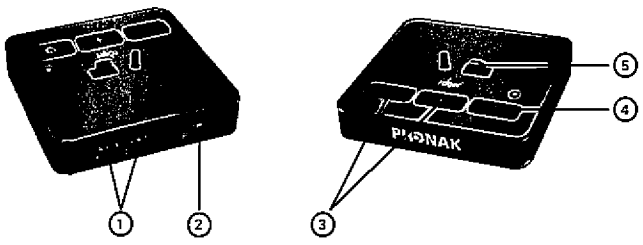
Phonak Pediatric on Facebook:
www.facebook.com/phonakpediatric

Phonak Pediatric on Twitter:
https://twitter.com/PhonakPediatric

www.phonakpro.com

Description

① 2 audio inputs
② Mini-USB power input
③ Volume up/down
④ Switch on/off
⑤ Mini-USB for charging Roger inspiro microphone



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General data

Type:	Roger and Dynamic FM secondary transmitter Operates with Roger and Dynamic FM microphones, receivers and Roger Dynamic SoundField
Dimensions (L x W x H):	90 x 90 x 20 mm / 3.5 x 3.5 x 0.8 inches
Weight:	87 g / 0.15 lbs
Operating conditions:	Temperature should not exceed the limit values of 0° to +40° Celsius / +32° to +104° Fahrenheit and relative humidity of <95 % (non condensing)
Transport and storage conditions:	During transport or storage, the temperature should not exceed the limit values of -20° to +60° Celsius / -4° to +140° Fahrenheit and relative humidity of 90 % for a long period

Roger characteristics

Transmission technology:	2.4 GHz including adaptive automatic frequency hopping
Power emission:	100 mW
Operating range:	20 m / 66 feet

Audio characteristics

Audio bandwidth:	100 Hz – 7.3 kHz

FM characteristics

Frequency range:	169 – 176 MHz (H-Band) 214 – 220 MHz (N-Band)
Power emission:	5 mW
Operating range:	20 m / 66 feet

Power supply

Voltage input:	100 – 240 V
Voltage output:	5 VDC / 1 A
Connector:	Mini-USB
Cable length:	1.5 m / 5 feet

MultiTalker Network

Operating range:	20 m / 66 feet

Standards

El. Safety:	IEC / EN 60950-1
Radiocom 2.4 GHz	EN 300 328
EMC:	EN 301.489-1, -3, -9, -17
Radiocom FM	EN 300.422-1, -2

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Roger DynaMic

Technical Data

roger

Roger DynaMic is a handy passaround microphone for use in classrooms.
It works as a secondary microphone on Phonak's MultiTalker Network, enabling speakers other than the primary Roger microphone wearer to wirelessly access any hearing-impaired listeners in the audience, including via the Roger Dynamic SoundField amplification system.
Roger DynaMic's algorithms are optimized to avoid picking up unwanted noise without missing any useful speech signals.

Roger DynaMic features

- Crystal-clear sound quality
- Operates with Roger and Dynamic FM receivers
- MultiTalker Network (MTN) with 2 modes:
  - Classroom
  - Conference
- Easy user interface
- Comfortable in the hand

What is Roger

Roger is the new digital standard that bridges the understanding gap, in noise and over distance, by wirelessly transmitting the speaker's voice directly to the listener.

Internet

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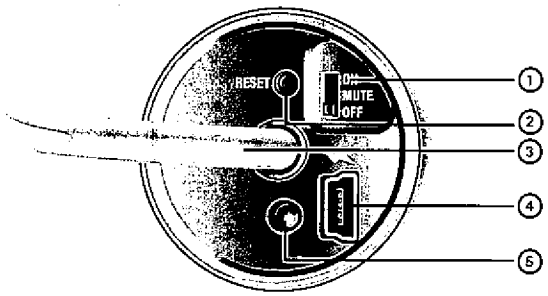
www.facebook.com/phonakpediatric

Phonak Pediatric on Twitter:
https://twitter.com/PhonakPediatric

www.phonakpro.com

Description

① On/off/mute slider
② Reset
③ Antenna
④ Mini-USB for charging
⑤ Indicator light (LED) for:
  - Battery status
  - Charging
  - Error status



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General data

Type:	Roger and Dynamic FM secondary microphone Operates with Roger receivers, Roger Dynamic SoundField and Dynamic FM receivers
Dimensions (L x Ø):	210 x 32 mm / 8.26 x 1.26 inches Antenna length: 150 mm / 5.9 inches
Weight:	110 g / 0.24 lbs
Operating conditions:	Temperature should not exceed the limit values of 0° to +40° Celsius / +32° to +104° Fahrenheit and relative humidity of < 95 % (non condensing)
Transport and storage conditions:	During transport or storage, the temperature should not exceed the limit values of -20° to +60° Celsius / -4° to +140° Fahrenheit and relative humidity of 90% for a long period
Battery:	Type: Lithium Polymer Capacity: 1000 mAh Voltage: 3.7 V Dimensions (L x W x H): 52 x 25.8 x 9.5 mm / 2 x 1 x 0.4 inches
Power supply:	Voltage input: 100 – 240 V Voltage output: 5 VDC / 1A Connector: Mini-USB Cable length: 1.5 m / 5 feet

Audio characteristics

Audio bandwidth:	100 Hz – 7.3 kHz
Microphone sensitivity:	97 dB SPL at fmod -1 kHz for fdev -4.0 KHz (100% modulation) 70 dB SPL at fmod -1 kHz for fdev -3.0 KHz

FM system data

Wireless link between FM devices (Synchronization/Monitoring)

FSK frequency (transmitter to receiver):	40.96 kHz
OOK frequency (receiver to transmitter):	8.192 kHz
Operating range:	10 cm / 3.9 inches
Wireless datalink to FM receiver Frequency range:	Above the audio band

Accessories

Accessories:	Desk stand with clamp

www.phonakpro.com

Roger characteristics

Transmission technology:	2.4 GHz including adaptive automatic frequency hopping
Power emission:	100 mW
Operating range:	20 m / 66 feet

Roger system data

Wireless link between Roger devices (Connect/Check)

Frequency (Roger microphone to Roger receiver):	2.4 GHz
Frequency (Roger receiver to Roger microphone):	2.4 GHz
Operating range:	10 cm / 3.9 inches

MultiTalker Network

Operating range:	20 m / 66 feet

Microphone characteristics

Microphone:	Array microphone with enhanced Voice Activity Detector for pick-up at distances of 15 cm (6") or less.

FM characteristics

Frequency range:	169 - 176 MHz (H-Band) 214 - 220 MHz (N-Band)
Power emission:	5 mW
Operating range:	20 m / 66 feet

Standards

El. Safety:	IEC/EN 60950-1
Radiocom 2.4 GHz:	EN 300 328
EMC:	EN 301.489-1, -3, -9, -17
SAR (2.4 GHz):	EN 62209-2 SAR 1g = 0.10 W/kg SAR 10g = 0.05 W/kg
Radiocom FM:	EN 300.422-1, -2 EN 300.330-1, -2

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Roger inspiro

Technical Data

roger

Roger inspiro is a wireless microphone that together with Roger receivers gives children high-quality access to the voice of the teacher or parent, especially in noisy conditions.

Roger inspiro can be used with a shirt-worn clip microphone (iLapel) or a head-worn microphone (EasyBoom). Roger inspiro can also be used in a network together with other Roger microphones. Ideally suited to teachers, Roger inspiro is the perfect choice for use in regular schools and special schools for students with hearing loss.

Roger inspiro features

- Crystal-clear sound quality
- Operates with Roger and Dynamic FM receivers
- Easy and intuitive user interface
- Two application modes:
  - Roger
  - Roger + FM
- Two microphone options:
  - EasyBoom for best signal-to-noise ration, and maximum wearing comfort
  - iLapel for directional miniature microphone, and easy to clip
- MultiTalker Network (MTN) with 2 modes:
  - Classroom
  - Conference
- Connect to set-up device network
- Check to read/manage device data
- Customized softkey allocation

Internet

Phonak Pediatric on Facebook:
www.facebook.com/phonakpediatric

Phonak Pediatric on Twitter:
https://twitter.com/PhonakPediatric

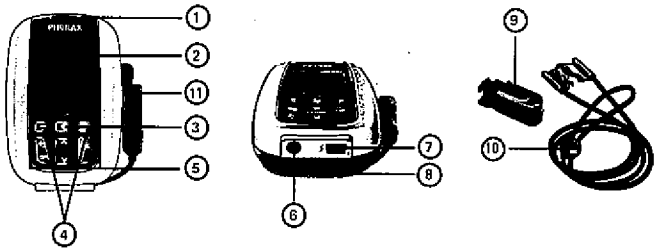
www.phonakpro.com

What is Roger

Roger is the new digital standard that bridges the understanding gap, in noise and over distance, by wirelessly transmitting the speaker's voice directly to the listener.

Description

① On/off slider
② Color screen
③ Microphone mute
④ Softkeys
⑤ Menu navigation: Up/Down, Back, OK
⑥ 3.5 mm audio input
⑦ Mini-USB for charging
⑧ Microphone cable wrapper
⑨ Clip
⑩ Neckloop
⑪ iLapel microphone



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General data

Type:	Roger and Dynamic FM microphone Operates with Roger receivers, Roger Dynamic SoundField and Dynamic FM receivers Operates with iLapel and EasyBoom microphone option
Dimensions (L x W x H):	83 x 56 x 24 mm / 3.26 x 2.20 x 0.94 inches
Weight:	69 g / 0.15 lbs
Operating conditions:	Temperature should not exceed the limit values of 0° to +40° Celsius / +32° to +104° Fahrenheit and relative humidity of < 95 % (non condensing)
Transport and storage conditions:	During transport or storage, the temperature should not exceed the limit values of -20° to +60° Celsius / -4° to +140° Fahrenheit and relative humidity of 90 % for a long period
Battery	Type: Lithium Polymer Capacity: 1000 mAh Voltage: 3.7 V Dimensions (L x W x H): 52 x 25.8 x 9.5 mm 2 x 1 x 0.4 inches
Power supply	Voltage input: 100 – 240 V Voltage output: 5 VDC / 1 A Connector: Mini-USB Cable length: 1.5 m / 5 feet

Audio characteristics

Audio bandwidth:	100 Hz – 7.3 kHz
Microphone sensitivity:	97 dB SPL at fmod - 1 kHz for fdev -4.0 KHz (100 % modulation) 70 dB SPL at fmod - 1kHz for fdev – 3.0 KHz

FM system data

Wireless link between FM devices (Synchronization/Monitoring)

FSK frequency (transmitter to receiver):	40.96 kHz
OOK frequency (receiver to transmitter):	8.192 kHz
Operating range:	10 cm / 3.9 inches

Wireless datalink to FM receiver

Frequency range:	Above the audio band

Accessories

EasyBoom	Microphone option

Roger characteristics

Transmission technology:	2.4 GHz including adaptive automatic frequency hopping
Power emission:	100 mW
Operating range:	20 m / 66 feet

Roger system data

Wireless link between Roger devices (Connect/Check)

Frequency (Roger microphone to Roger receiver):	2.4 GHz
Frequency (Roger receiver to Roger microphone):	2.4 GHz
Operating range:	10 cm / 3.9 inches

MultiTalker Network

Number of talkers:	Up to 35 microphones
Network priority mode:	Classroom or conference mode can be selected
Operating range:	20 m / 66 feet

Microphone characteristics

iLapel microphone:	Array microphone with enhanced Voice Activity Detector for pick-up at distances of 15 cm / 6 inches or less.

FM characteristics

Frequency range:	169 – 176 MHz (H-Band) 214 – 220 MHz (N-Band)
Power emission:	5 mW
Operating range:	20 m / 66 feet

Standards

El. Safety:	IEC / EN 60950-1
Radiocom 2.4 GHz:	EN 300 328
EMC:	EN 301.489-1, -3, -9, -17
SAR (2.4 GHz):	EN 62209-2 SAR 1 g = 0.10 W/kg SAR 10 g = 0.05 W kg
Radiocom FM:	EN 300.422-1, -2 EN 300.330-1, -2

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Roger MyLink

Technical Data

roger

Roger MyLink is a universal inductive neckloop receiver that brings industry-leading speech-in-noise performance to any person with hearing loss.

Simply connect Roger MyLink with a Roger wireless microphone. Roger MyLink is compatible with all hearing instruments and cochlear implants that feature a T-Coil, including ITE and micro sized BTEs.

Roger MyLink features

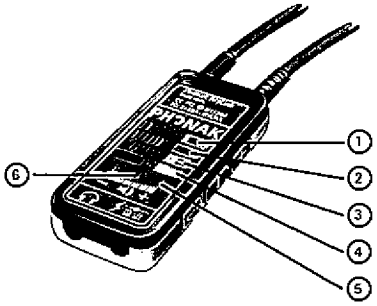
- Additional adaptive gain
- Effective stand-by mode
- Rechargeable built-in battery
- Over 10 hours operating time
- Headphone output
- Check to read device data via Roger inspiro
- Link quality measurement

What is Roger

Roger is the new digital standard that bridges the understanding gap, in noise and over distance, by wirelessly transmitting the speaker's voice directly to the listener.

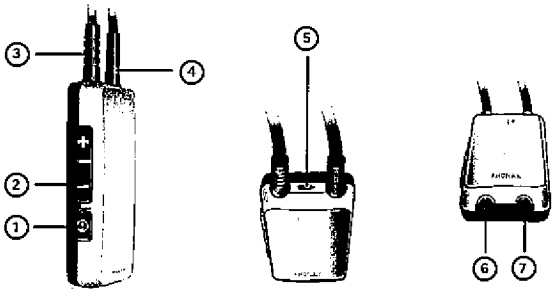
Indicator light

① Battery almost exhausted
② Battery completely exhausted
③ Charging in progress
④ Charging completed
⑤ Volume control: minimum / maximum position
⑥ Volume control: middle position



Description

① On / off
② Volume control
③ Detachable side of the neckloop
④ Fixed side of the neckloop
⑤ Indicator light (LED)
⑥ Charging socket
⑦ Headphone socket (2.5 mm)



CE

PHONAK
life is on

General data

Type:	Universal inductive Roger receiver Operates with Roger inspiro
Dimensions without neckloop (L x W x H):	66 x 29 x 12 mm / 2.60 x 1.14 x 0.47 inch
Length of standard loop:	760 mm / 30 inches
Length of short loop:	560 mm / 22 inches
Weight (including standard loop):	42 g / 0.09 lb
Operating conditions:	The product has been designed for trouble-free operation without restrictions when used as intended, unless otherwise stated in the user guide. 0° to +40° Celsius, +32° to +104° Fahrenheit and relative humidity < 95% (non condensing)
Transport and storage conditions:	-20° to +60° Celsius, -4° to +140° Fahrenheit and relative humidity of 90% for a long period of time

Power and battery information

Battery information:	
Type:	Lithium Polymer 3.7 V DC Embedded, not removable Capacity: 250 mAh (typ.) Charging time: 2 hours (typ.)
Operating time:	>10 hours
Charging information:	
Input voltage:	7.5 V DC, stabilized Circular connector, 1.1 / 3 mm, inner pole positive Input current: max. 260 mA The battery cannot be over-charged. It may become warm during charging

Roger characteristics

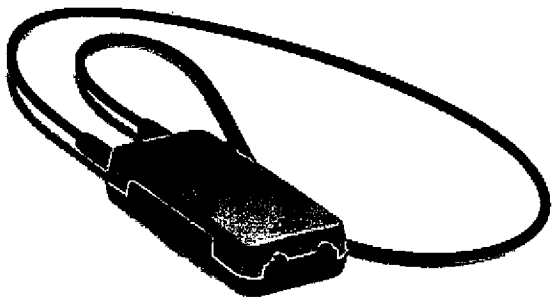
Frequency:	2.4 GHz including adaptive automatic frequency hopping
Transmission delay:	< 20 ms
Antenna:	Built-in antenna
Backlink RF power:	< 10 mW / MHz

Standards

Radiocom:	EN 300 328 FCC part 15.249
EMC:	EN 60601-1-2 FCC part 15b

Audio characteristics

Audio bandwidth:	100 Hz – 5.5 kHz
Distortion:	< 2% for fmod = 1 kHz
Magnetic field strength:	1.25 A / m 150 mm above the center loop (transmitter in compression, fmod = 1 kHz, surrounding noise level < 58 dB SPL)
Additional adaptive audio gain:	Up to 20 dB
Level of headphone output:	150 mV at 32 Ohm (transmitter in compression, fmod = 1 kHz, surrounding noise level < 58 dB SPL)
Headphone connector:	Jack 2.5 mm / 0.1 inch



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Email enquiries@projectionplus.com.au
ABN 62 592 805 980

QUOTATION

Quotation No: **Q16764**

Date of Quotation: **6 November 2014**

Mr Chris Dance
Alice Springs Town Council
IT Support
PO Box 1071
Todd Street
Alice Springs NT 0871

Ph: 8950 0500

Dear Chris

QUOTATION: Supply and Installation of Public Address and IR Hearing Assistance Solution

Thank you for allowing us to quote on the following:

This quotation is for the Supply and Installation of a Public Address and IR Hearing Assistance Solution into the Andy McNeil Room- Alice Springs Town Council.

To provide ease of use, optimal sound delivery and hardware security I am recommending the following hardware configuration.

To enable speech amplification and sound reinforcement a combination of JBL Control 29 Speakers, Crown XLS2000 Power Amplifier, Australian Monitor AMD 100 Mixer Amp with DSP and two Shure BLX SM58 Wireless Microphone System will be installed.
This system will provide complete audio coverage in the given space and provide simple volume control dials enabling microphone and master volume outputs.
Signal processing and mixing will be accommodated through the AMD100 unit.

All system hardware will be housed in a wall mounted AV Rack providing security and service accessibility.

To provide the room with complete hearing assistance coverage we will install the Williamsound IR System.
This scaleable system provides complete coverage within the room.
Using an IR solution eliminates the need for replacement floor coverings or costly installation of induction loop tape.
The system comprises of a TX75 Transmitter (capable of covering over 300 square metres), three RX22-4N Bodypack Receivers, three HED021 Headsets and three NKL001 Neck Loops (the neck loops interact with a hearing aid device, when the aid is placed in the 'T' position it will be fed signal from the system).
Being scaleable any combination of additional receivers, headsets and Neck Loops can be added to the system.

This system will provide the best outcome for reliability, user experience and cost.
The quote is inclusive of all required hardware, labour, flights, accommodation and system commissioning.

continued over...

Quotation No: **Q16764**
Date of Quotation: **6 November 2014**

Qty	Item Code	Description	Unit Price (ex GST)	GST	Net Amount (inc GST)
1	Installation	**Installation Costs**	3 396.00	339.60	3 735.60
2	JBL-CTRL29AVWH	**JBL Control 29 Loudspeaker 300W- White** Loudspeaker shielded black 205mm 2-way;300W @ 8? 110W @70V/100V;110x85deg	736.00	73.60	1 619.20
1	CRN-XLS2000	**Crown Power Amplifier 2x650W** Power Amplifier 2x650W@4 Ohms Class D 4.9Kg	916.00	91.60	1 007.60
1	AMD100	**Australian Monitor AMD100 Mixer Amp with DSP**	933.00	93.30	1 026.30
2	SHR-BLX24RB58K	**Shure BLX Wireless Microphone System** Wireless 1/2R Handheld System BLX2 Tx; BETA58 Mic; BLX4R Rx Auto Setup: 614-638MHz	748.00	74.80	1 645.60
1	W9RU550	**Dueltek 9RU 550mm Deep 19" Wall Mount Cabinet**	403.00	40.30	443.30
1	WIRSYS7522	**Williams Sound IR Hearing Assistance System- Pre Packaged** Each WIRSYS7522 package includes: (1) WIRTX75, (3) WIRRX22-4N, (3) HED021, (2) NKL001, (8) BAT001, 1 IDP008	2 259.00	225.90	2 484.90
1	BKT024	**Omnidirectional wall or ceiling mount bracket for WIR TX9 or WIR TX90**	84.00	8.40	92.40
2	Flights	**Flights from Darwin to ASP Return -Per Person**	868.00	86.80	1 909.60
2	Accommodation	**Accommodation per Night Twin Share**	190.00	19.00	418.00
1	Car Hire	**Car Hire Alice Springs**	179.00	17.90	196.90
1	NKL001	**Williams Sound Neck Loop**	97.00	9.70	106.70
		TOTALS FOR QUOTE:	**13 351.00**	**1 335.10**	**14 686.10**

To ensure the highest quality service and installation Projection Plus is fully accredited in the following Standards:

- AS/NZS ISO 9001:2008 Quality Management Systems
- AS/NZS 4801:2001 Occupational Health & Safety Management Systems
- AS/NZS ISO 14001:2004 Environmental Management Systems

Please Note:

〈 If any unforeseen circumstances arise, further charges may apply. The client will be consulted for approval prior to any extra billable services taking place.

〈 Structural vibration, if present, will affect the quality of a projected image.

〈 Any issues arising from the installation will be corrected up to a period of 30 days from the date of completion or sign off of the job.

〈 Electrical Work and Network Components are **not** included unless otherwise stated.
Should electrical maintenance or additional RCD circuitry be required this would incur additional charges to the client.

〈 Please notify Projection Plus of any asbestos that may be present where work is to be carried out. If asbestos is found, all costs incurred for removal and delay to job will be the responsibility of the client.

〈 Prices quoted are for cash or account customers only. Payment is required within 30 days from date of invoice.

〈 This quote is valid for 30 days from date of quotation and is FIS Darwin.

〈 All credit card transactions will attract a merchant fee of 1.6% plus GST. This is the fee charged by our bank for processing these transactions.

Your feedback is always welcome.

Assuring you of our attention at all times.

Yours sincerely

Duncan McAvoy
Government and Corporate Sales

Signature: _____

Name: _____

Title: _____

Date: _____

ACCEPTED FOR AND ON BEHALF OF THE CUSTOMER BY DULY AUTHORISED OFFICER SUBJECT TO THE TERMS AND CONDITIONS ON THIS DOCUMENT.